575

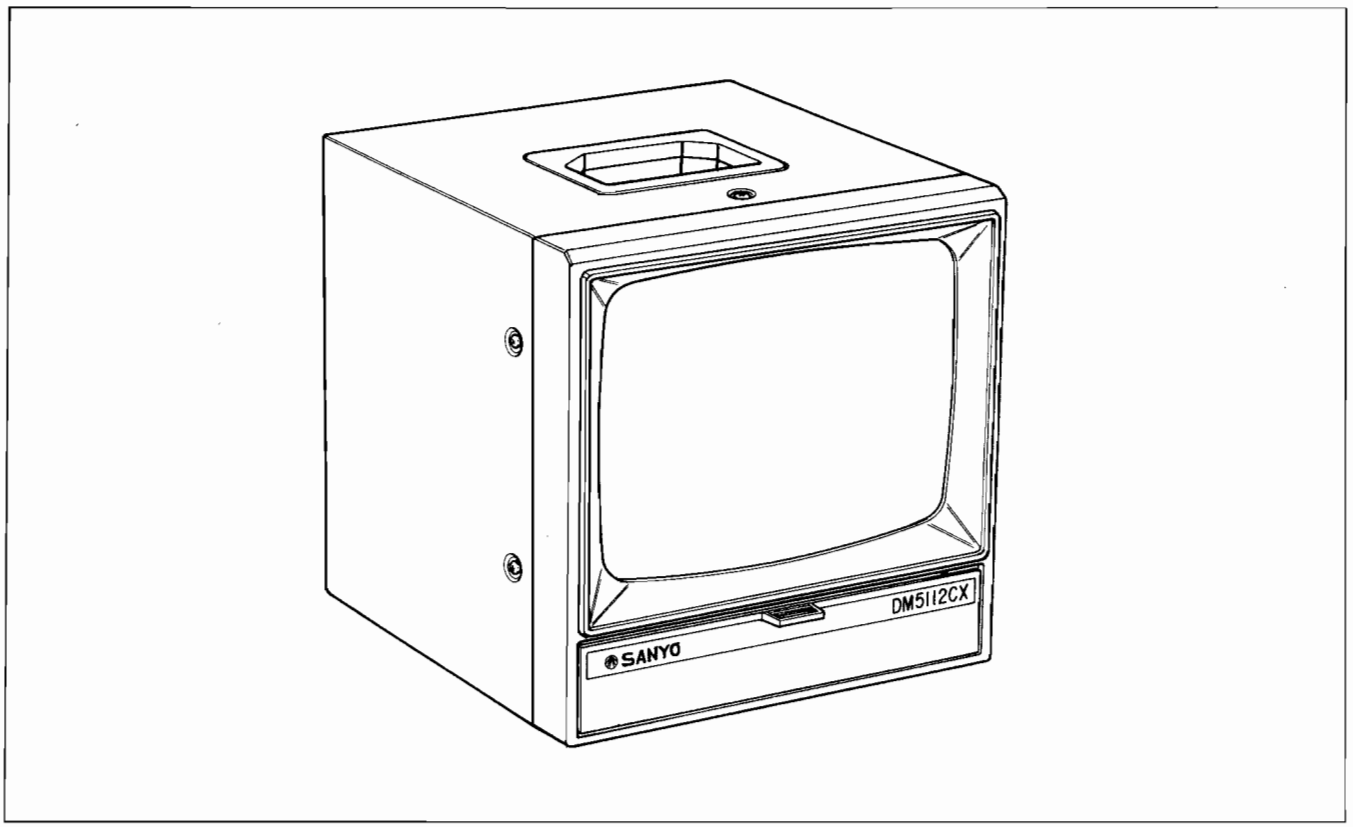
SERVICE MANUAL

DATA DISPLAY

SANYO

DM5112CX

(EUROPE)

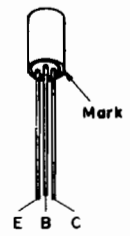
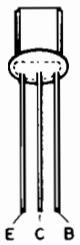
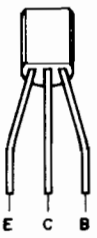
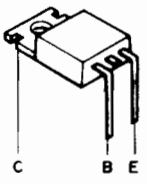
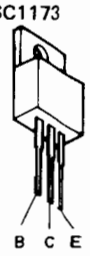
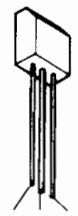
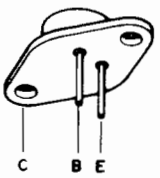
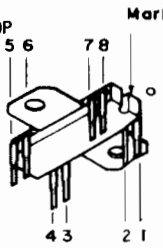
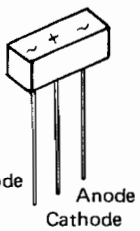
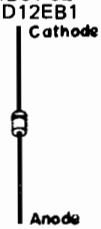
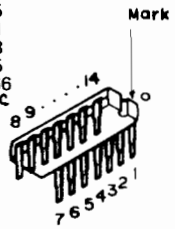
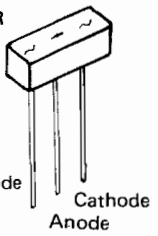
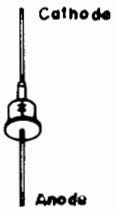
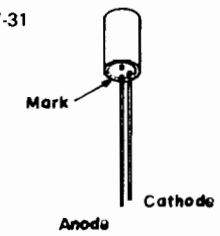
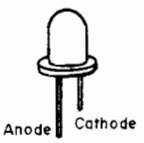
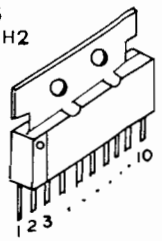


SPECIFICATIONS

Power source	AC 220 Volts, 50 Hz
Power consumption	29 Watts
Input signal	Composite video signal, sync. negative 1.0 $^{+0.5}_{-0.3}$ Vp-p, 75 ohms
Picture tube	12 inch diagonal, 90° deflection, 310GMB31-HT or 310KMB31-ARF
Phosphor	P31 (green)
Semiconductors	IC 1 Transistor 13 Diode 16
Video amp. bandwidth	18 MHz
Display area	Horizontal 21 cm (46μS) Vertical 15 cm (18.23mS)
Display format	1920 characters max. (80 char. x 24 lines)
Scanning Frequency	Horizontal rate 15.625 KHz, Vertical rate 50 Hz
Dimensions	310 (W) x 315 (H) x 314 (D) mm (approx.)
Weight	9.3 kg (approx.)

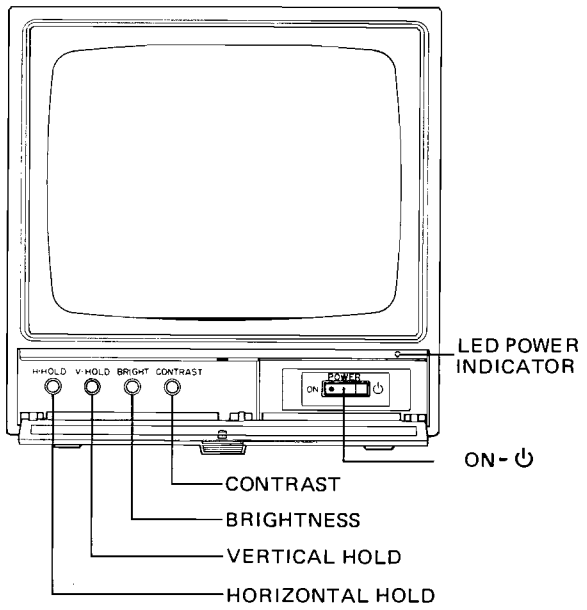
NOTE: Specifications are subject to change without notice.

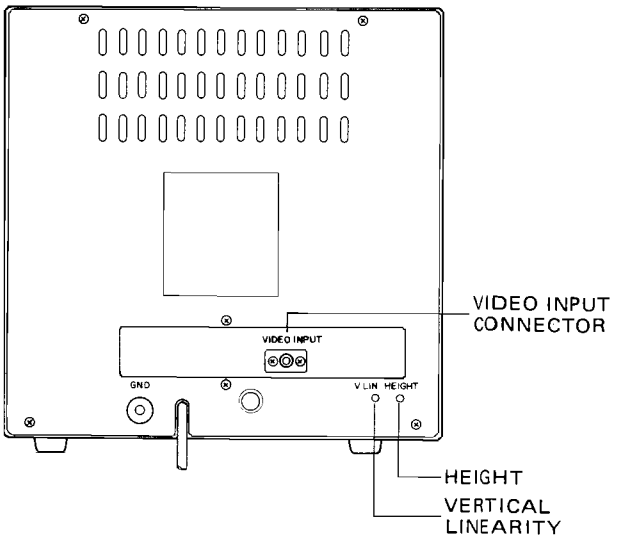
TERMINAL VIEW

2SA201 2SB187 	2SA495 	2SA608 2SA643 2SA659 2SA733 2SB598 2SC536 2SC929 2SC930 2SC945 2SC1175 2SC1293 2SC2271 2SC2228 2SD400 2SD438 	2SD314 2SD331 	2SD613 2SB507 2SB511 2SC1096 2SC1506 2SC1507 2SC1520 2SC1755 2SC1756 2SC2373 2SD823 2SD313 2SD325 2SD386 2SC1173 
2SC983 2SC1941 	2SD612 	2SB375 2SB407 2SB474 2SC1024 2SC1025 2SC1046 2SC1050 2SC1295 2SC1875 2SD24 2SD315 2SD353 2SD575 2SD627 2SC1892 	2SC2057 	LA4030P 
S2VC10 	1JZ61 1R5TH61 ER830-15 ERC27-13 V09G U06C 	1S188 1S1834 1S2076 ERB-24-02D ERB-24-04D ERB-24-06D SM-1-02FR SM-1-04FR SM-1.5-02FRT WZ-063 WZ-075 WZ-110 RD-6.2E RD-7.5E SIB01-02 RD12EB1 	LA1354 µPC596C 	LA1352 CA3065 LA1201 LA1363 LA1365 SN76666 µPC595C 
S2VC10R 	DS-113 	SV-31 	SLP-131B 	LA1385 µPC1031H2 

E : Emitter C : Collector B : Base S : Shield

CONTROLS AND TERMINAL IDENTIFICATION





MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

1. Carefully lay cabinet face down on soft mat.
2. Remove six (1 ~ 6) screws securing the cabinet back. (See Fig. 1)

CHASSIS REMOVAL

1. First remove the cabinet back and remove five (12 ~ 16) screws securing the cabinet bottom. Then remove five (7 ~ 11) screws sequring the cabinet.
2. Disconnect anode cap, picture tube socket, grounding connector and LED connector. Then slightly loosen the screw securing the deflection yoke.
3. Remove two (17 ~ 18) screws. Separate chassis from the escutcheon. (See Fig. 2)

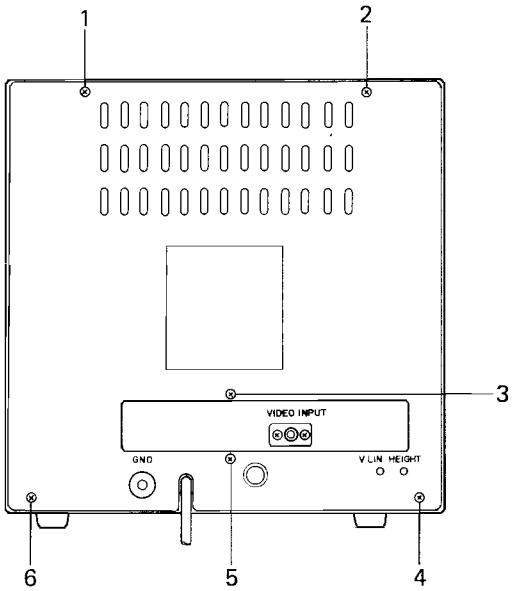


Fig. 1

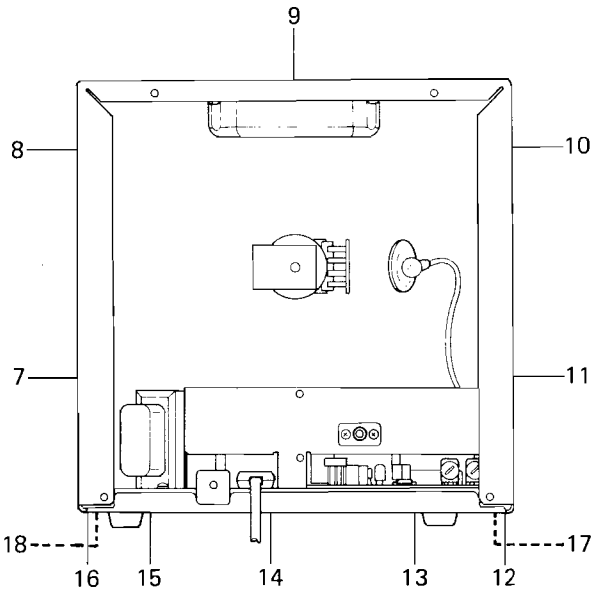


Fig. 2

IMPORTANT NOTICE FOR SERVICE PERSONNEL BEFORE SERVICING

PLEASE READ BEFORE ATTEMPTING SERVICE

1. Line voltage must be kept within ±10% of the rated voltage.
2. When operating at line voltage, confirm the DC voltage at TP 1 (J403) is 11.5±0.1 V. (Adjust VR701)
3. DO NOT DISCHARGE, ARC, OR MEASURE HIGH VOLTAGE WHEN HIGH VOLTAGE LEAD IS CONNECTED TO CRT. DISCHARGE 2ND ANODE OF CRT ONLY AFTER HIGH VOLTAGE LEAD HAS BEEN DISCONNECTED. DO NOT DISCHARGE HIGH VOLTAGE LEAD AT ANY TIME, DAMAGE TO TRANSISTORS MAY RESULT.
4. While the receiver is in operation, do not attempt to connect or disconnect any wires.
5. Disconnect all power before attempting any repairs.
6. When the power is on, do not attempt to short any portion of the circuit. This shorting may cause damage to the transistors in the receiver.

ADJUSTMENT

Apply power and composite video signal (alphanumeric information) to the data display.

DEFLECTION YOKE AND CENTERING RINGS

1. Loosen the Deflection Yoke (L901) clamp and carefully move the yoke on the neck of the picture tube as far forward as possible. Rotate the yoke until the top and bottom edges of the raster are straight. Tighten the clamp.
2. Center the raster and eliminate shaded corners by rotating the centering ring until the best effect is obtained.

SUB-BRIGHTNESS

1. Set Brightness (VR202) and Contrast (VR201) controls to maximum.
2. Disconnect Video input signal connector.
3. Adjust Sub-Brightness control (VR203) to the point where horizontal dim lines barely appear on the screen.

PICTURE FOCUS

Adjust Focus control (VR602) to obtain the best focus. While the adjustment, do not disconnect the picture tube coating earth.

HORIZONTAL HOLD

1. Set Horizontal Hold control (VR601) to the center position.
2. Adjust Horizontal Oscillator coil (L601) to place the information to the center of raster. (Provide full information on display area.)

HORIZONTAL WIDTH AND LINEARITY

1. Adjust Width control (L604) to obtain the optimum width for full information. (If the recommended input signal format used, the width is 21±0.5 cm.)
2. If horizontal linearity is unsatisfied, adjust Linearity coil (L603) for optimum linearity.

VERTICAL HEIGHT AND LINEARITY

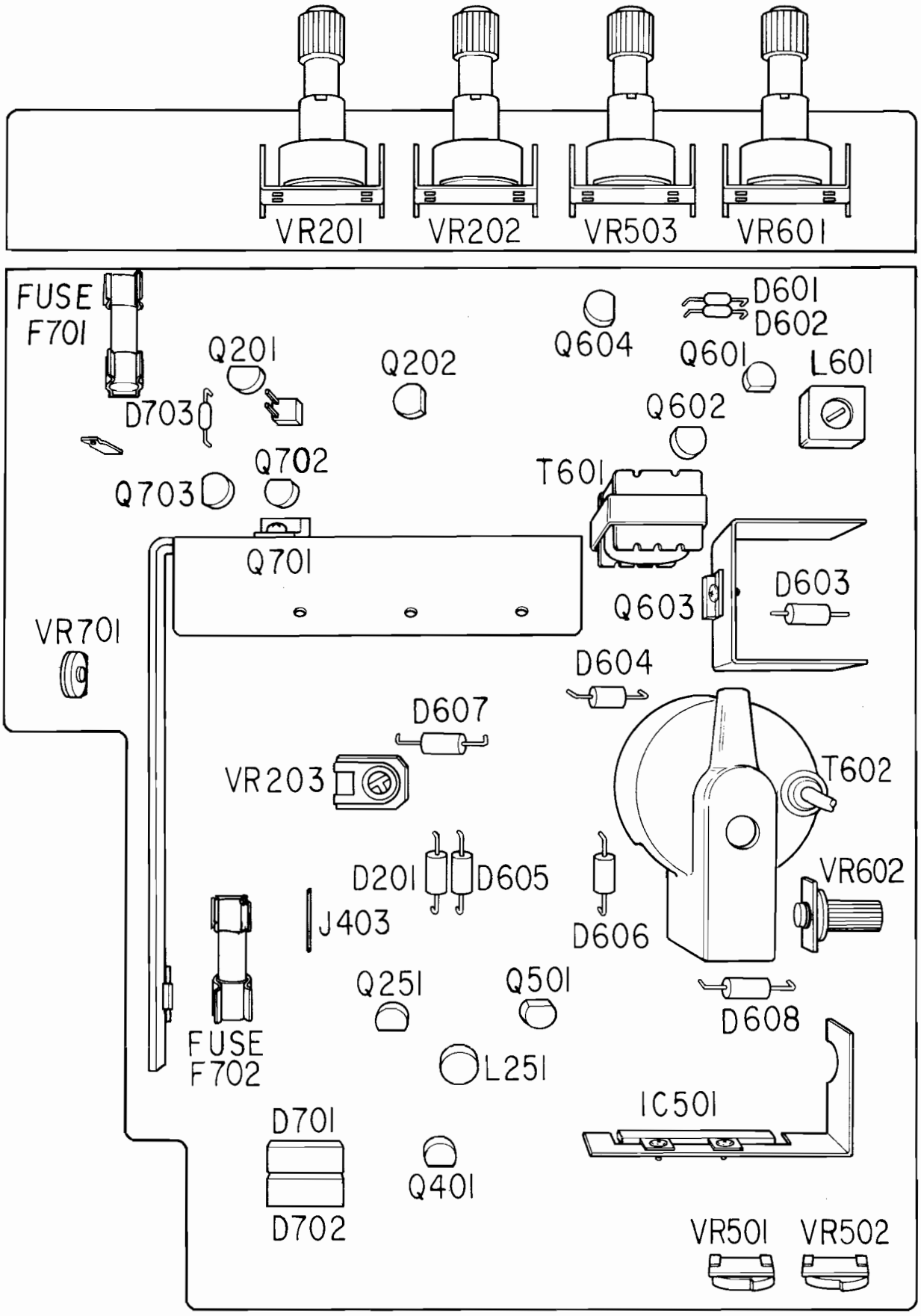
PRELIMINARY

1. Adjust the set as first as possible after switch "ON."
2. Set Contrast control (VR201) to the one-third position from the max. point and Brightness control (VR202) to the fully clockwise.

ADJUSTMENT PROCEDURE

1. Syncronize the vertical frequency to the information signal by Vertical Hold control (VR503).
2. Set Height control (VR502) to 80% of the screen.
3. Adjust Vertical Linearity control (VR501) for the best linearity and Height control (VR502) to obtain the optimum height for full information. (If the recommmended input signal format used, the height is 15±0.5 cm.)

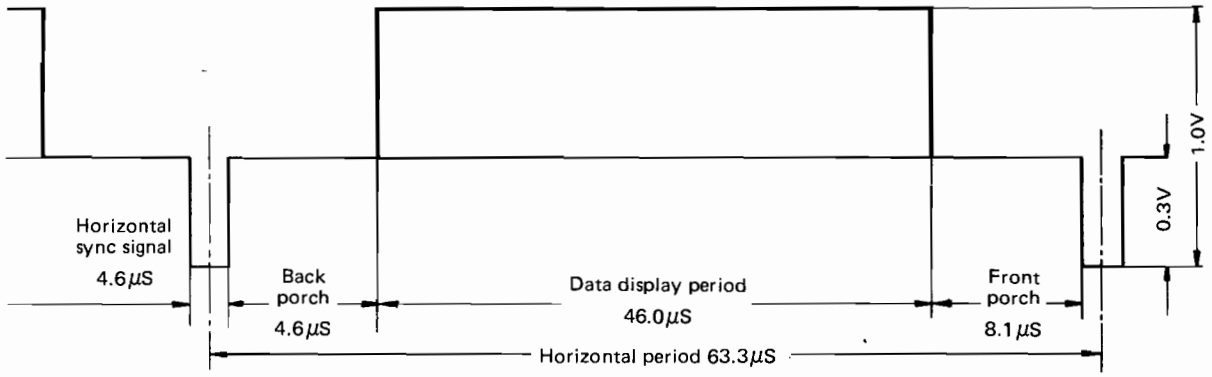
PARTS LOCATION



INPUT SIGNAL FORMAT

The recommended Input Signal Format is shown in Fig. 4.

HORIZONTAL sync period



VERTICAL sync period

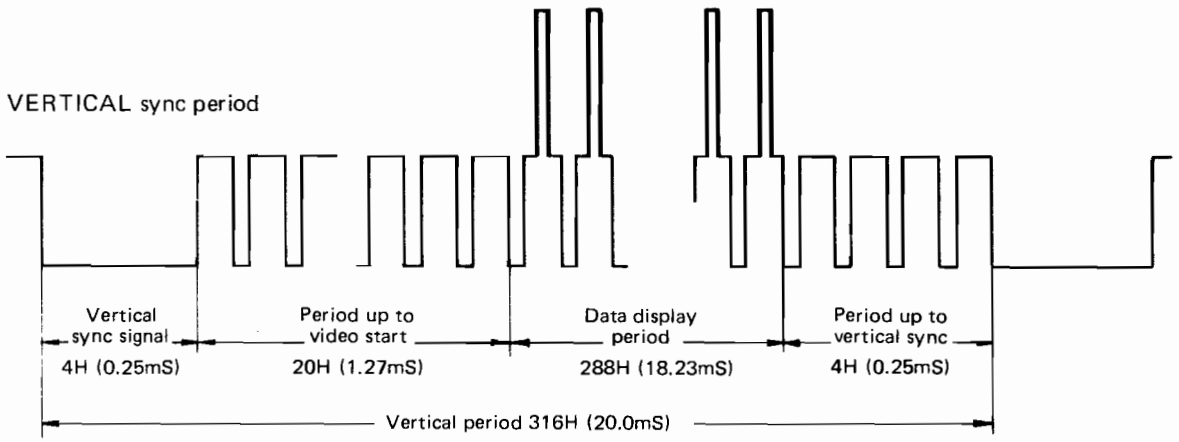


Fig. 4

Note; H --- Horizontal period.

HOW TO PROVIDE THE COMPOSITE VIDEO SIGNAL

The schematic diagram in Fig. 5 shows to make the composite video signal from TTL separate signals.

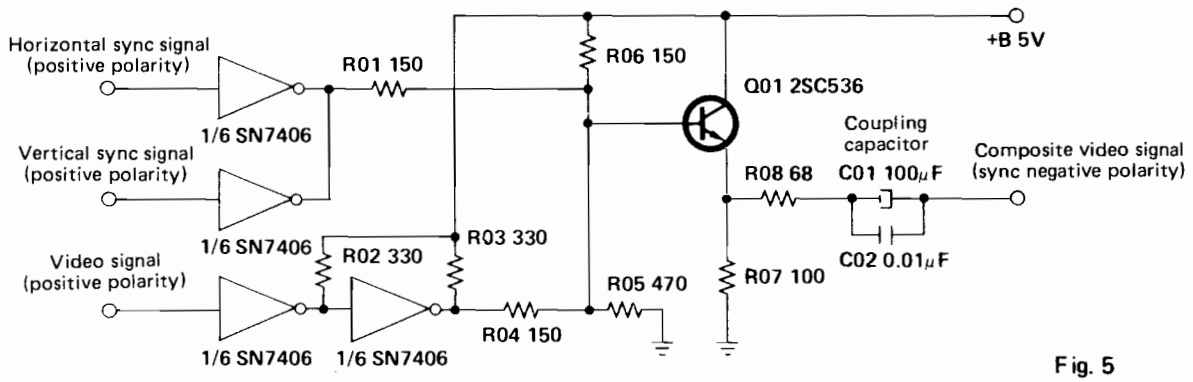
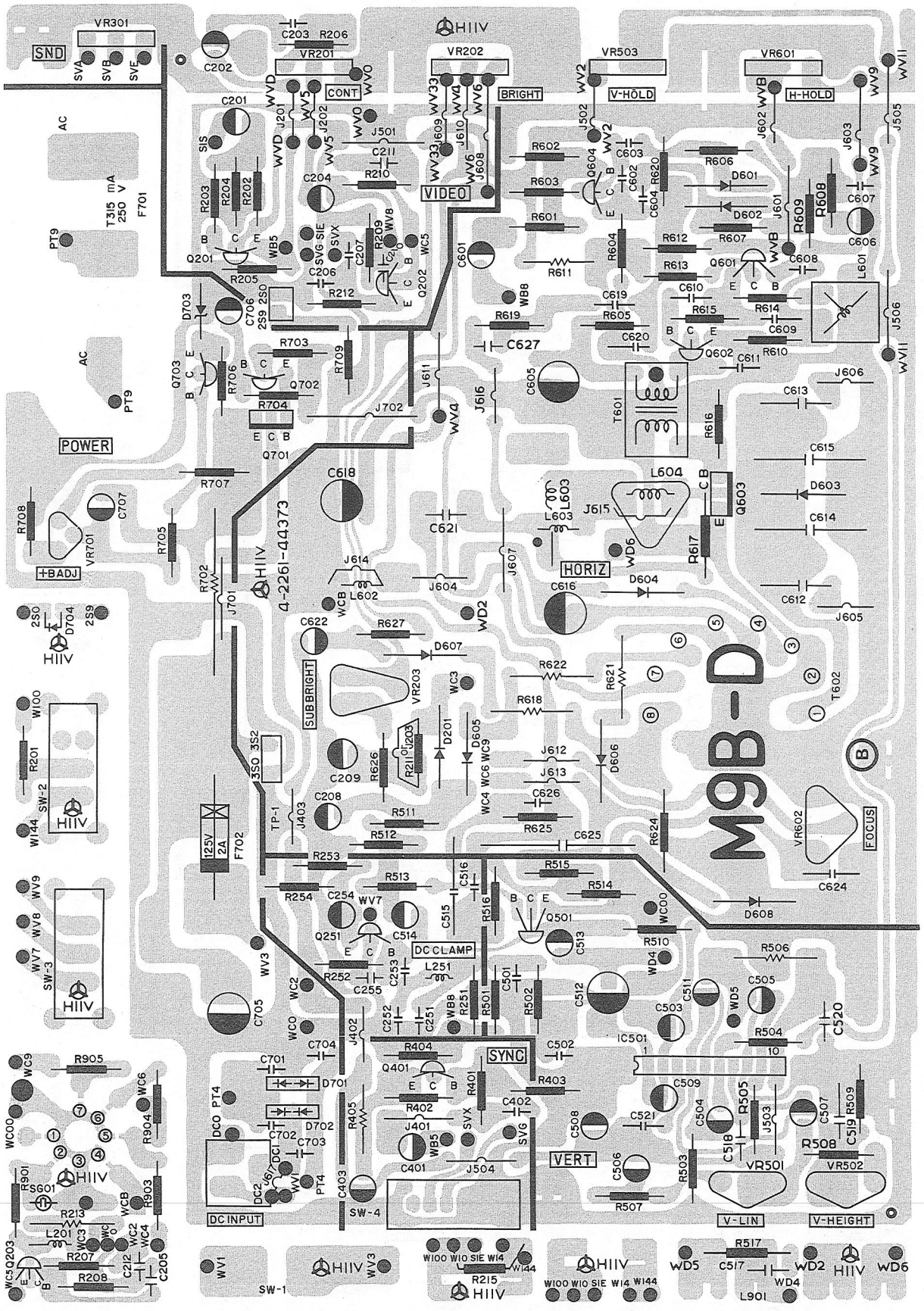
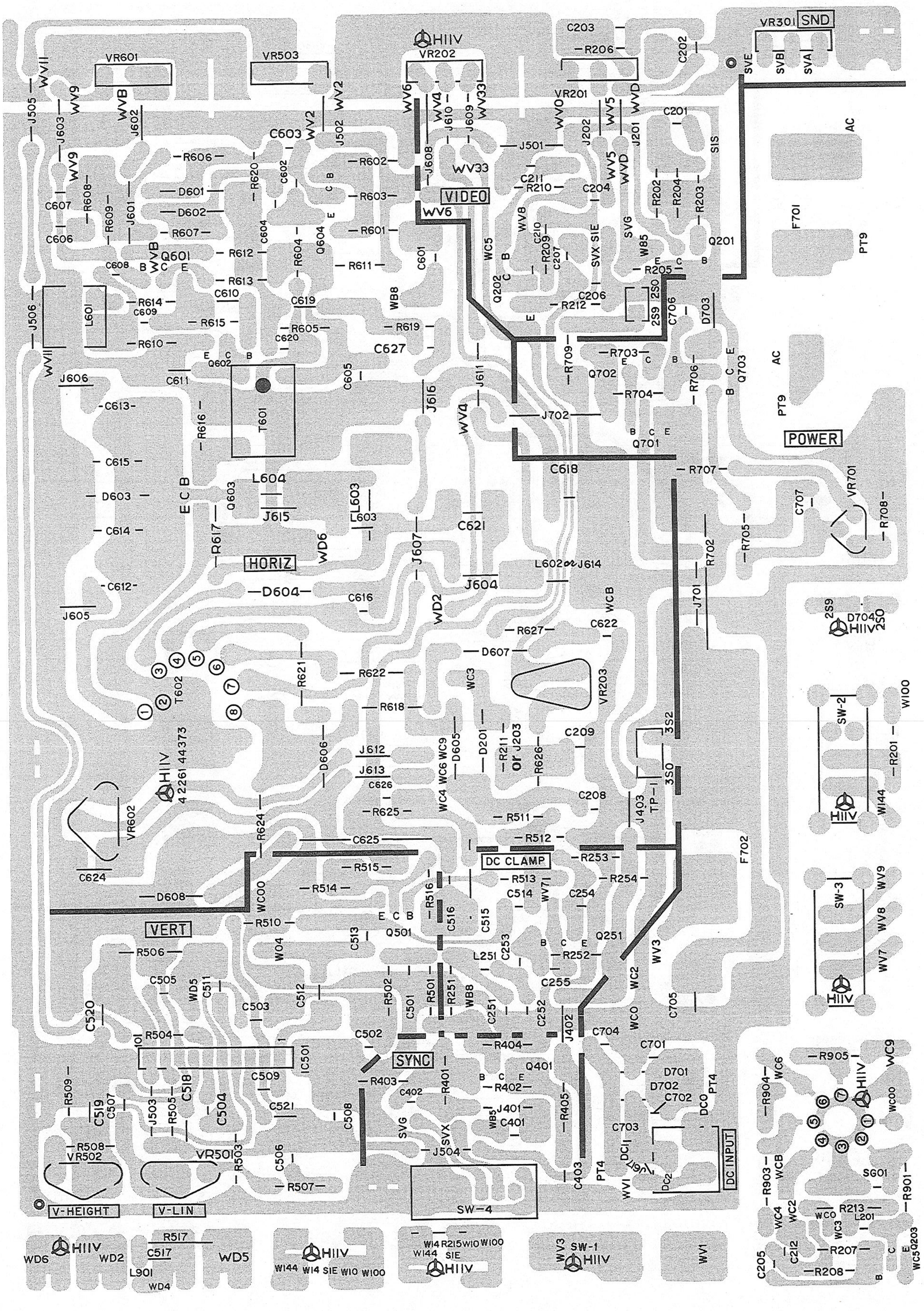


Fig. 5

CIRCUIT BOARD DIAGRAM (Parts side)



CIRCUIT BOARD DIAGRAM (Foil side)

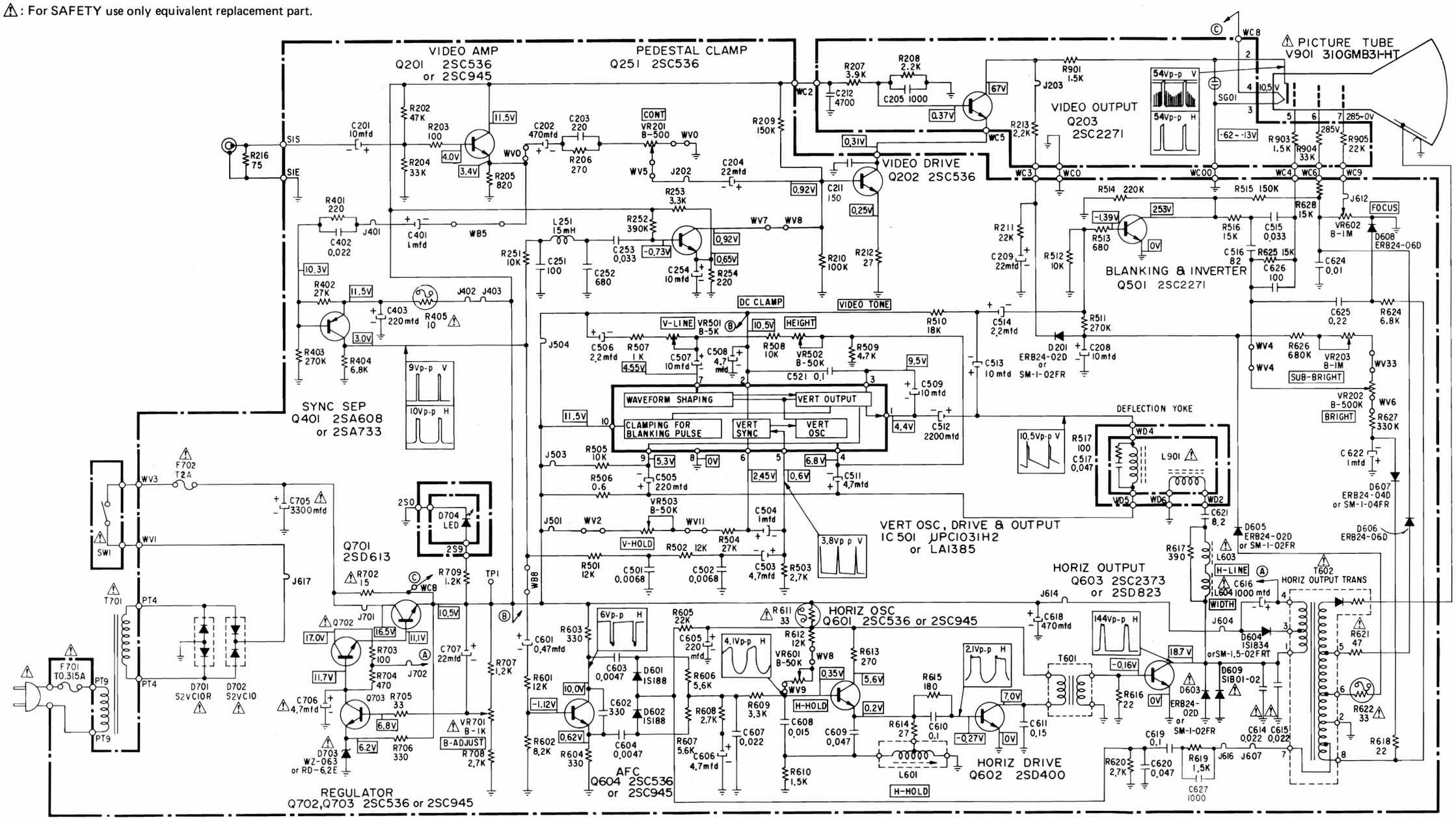

VR601
VR503
VR202
H11V
VR201
VR301 SND
VIDEO
POWER
HORIZ
VERT
DC CLAMP
SYNC
DC INPUT
V-HEIGHT
V-LIN
T601
T602
IC501
Q601
Q602
Q603
Q604
Q201
Q202
Q251
Q401
Q501
Q701
Q702
Q703
SW-1
SW-2
SW-3
SW-4
VR501
VR502
VR602
VR203
VR701
F701
F702
L601
L603
L604
L251
L602 or J614
R211 or J203
SG01

SCHEMATIC DIAGRAM

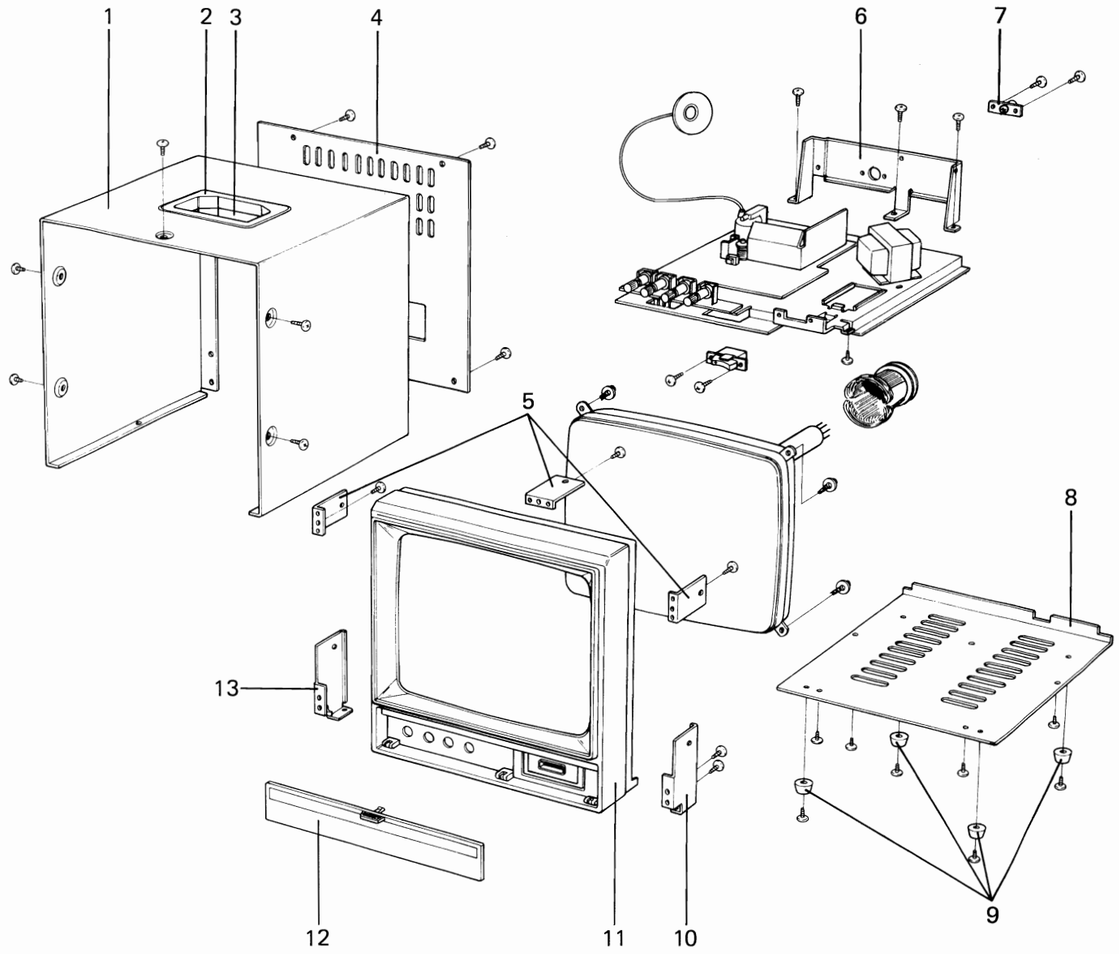
NOTES:

1. All resistance values are in ohm. K = 1,000 M = 1,000,000
2. Unless otherwise noted in schematic diagram, all capacitors less than 1 are expressed in mfd (μF) and the values larger than 1 are in pF.
3. Voltage reading taken with High Impedance Voltmeter from point indicated to chassis ground, contrast at max, other controls at normal. line voltage 220V.
4. All waveforms measured with strong signal input, contrast set to give normal picture.
5. Voltage reading may vary ± 20%.
6. This is a fundamental circuit diagram. Some production changes may be made without revision of the diagram.

⚠: For SAFETY use only equivalent replacement part.



REPLACEMENT PARTS LIST



Key No.	Parts No.	Descrption	Q'ty
1	111 2 1111 12170	CABINET-MBH	1
2	111 2 1711 23571	HANDLE TOP-MAT	1
3	111 2 1711 23671	HANDLE BOTTOM-MAT	1
4	111 2 1171 26970	BACK COVER-MBH	1
5	111 2 3231 17670	CABINET MTG BRACKET-MBH	3
6	111 2 3651 22270	CONNECTER MTG BRACKET-MBH	1
7	4 2351 74970	SOCKET PHONO 1P	1
8	111 2 1181 12870	BOTTOM COVER-MBH	1
9	111 2 1731 11270	FEET-MAT	4
10	111 2 3311 23370	RIGHT CHASSIS MTG BRACKET-MBH	1
11	111 0 1211 09071	ESCUTCHEON ASSY-MBH	1
12	111 0 1371 04971	DOOR ASSY-MBH-B	1
13	111 2 3311 23470	LEFT CHASSIS MTG BRACKET-MBH	1

PARTS LIST

Schematic Location	Parts No.	Description	Q'ty
CHASSIS PARTS			
	111 0 6211 06070	POWER RAD PL AY-MAT	1
	111 2 3121 18970	CHASSIS FRAME-MBH	1
	111 2 3651 22270	CONN MTG BRKT-MBH	1
	111 2 5291 12870	FBT HOLD BRKT-MAT	1
	111 2 6211 22670	HOR RAD PLATE-TJJ	1
	111 2 6211 22770	VERT RAD PLATE-TJJ	1
	111 2 6220 10100	CONNECTING TIP-HW	2
	111 2 7221 11570	CORD FIXER-MAF	1
PACKING MATERIALS			
	111 6 1421 60571	IND CORR CASE-MBH-B	1
	111 6 2511 19670	IND POLY COVER-MBA	1
	111 6 3111 55870	TOP INNER CUSH-MBH	1
	111 6 3111 55970	BOT INNER CUSH-MBH	1
	111 6 3231 12370	PROTECT SHEET-MBH	1
ACCESSORIES AND LABELS			
	111 6 2701 15700	PM ASSY-MBH	1
	111 6 2711 05870	ENVELOPE-SR-C	(1)
	111 6 4211 26464	SCHEMATIC DIAG-M9	(1)
	111 6 4111 10600	INST MANUAL-MBH	(1)
	111 6 4551 16970	SERIAL NO LABEL	1
	111 6 4761 33970	SPEC LABEL-MBH	1
SCREWS-CABINET			
	102 3 1604 00809	STT 1, 4.0X 8,C2	5
	102 3 2203 01001	SBT , 3.0X 10,Z1	5
	102 3 2203 50801	SBT , 3.5X 8,Z1	13
	102 3 2204 01003	SBT , 4.0X 10,Z1	7
	102 3 2204 01202	SBT , 4.0X 12,Z1	3
SCREWS-CHASSIS			
	102 3 1604 01201	STT 1, 4.0X 12,Z1	4
	102 3 2203 00601	SBT , 3.0X 6,Z1	2
	102 3 2203 00802	SBT , 3.0X 8,Z1	9
	102 3 2203 01602	SBT , 3.0X 16,Z1	2
	102 3 2203 50801	SBT , 3.5X 8,Z1	2
ELECTRICAL PARTS			
L251	4 2531 14270	FILTER COIL 15MH	1
L601	4 2731 06170	HORIZ OSC COIL	1
⚠ L603	4 2741 06070	LINEARITY COIL	1
⚠ L604	4 2741 05870	WIDTH COIL	1
⚠ L901	4 2761 50070	DEFLECTION YORK	1
T601	4 2731 06270	HORIZ DRIVE TRANS	1
⚠ T602	4 2751 51700	FLYBACK TRANS	1
⚠ T701	4 2511 46422	POWER TRANS	1
SMALL PARTS			
	4 2261 44373	PC BOARD M9B-D	1
⚠	4 2311 05272	SEESAW SWITCH	1
	4 2350 61600	TERMINAL SOCKET	1
	4 2351 05470	CRT SOCKET	1
	4 2351 45473	FUSE HOLDER	1
	4 2351 46270	FUSE CLIP	2
	4 2351 74970	SOCKET PHONO 1P	1
	4 2361 05570	GT PIN	1
	4 2361 12270	2P MICRO PLUG	1
	4 2361 14670	1P MICRO PLUG	4
	111 0 9081 02024	2P MICRO SOCKET ASSY	1
	111 2 6221 11370	1P TERMINAL	2
⚠ F701	4 2341 08770	FUSE 315MA250V SEMKO	1
⚠ F702	4 2341 06770	FUSE 2A 250V SEMKO	1
SG01	4 2341 06270	SPARK GAP	1
or	4 2341 07770	SPARK GAP	1
⚠	111 0 9131 53000	AC CORD ASSY-CEE	1
VARIABLE RESISTORS			
VR201	4 2221 35670	16FRN25ZB-500PK	1
VR202	4 2221 35870	16FRN25ZB-500KPK	1
VR203	4 2221 34770	9C2VFRB-1M	1
VR501	4 2221 35470	12CFR4B-5K	1
VR502	4 2221 35570	12CFR4B-50K	1
VR503	4 2221 35770	16FRN25ZB-50KPK	1
VR601	4 2221 35770	16FRN25ZB-50KPK	1
VR602	4 2221 35070	15CHFR7B-1M	1
⚠ VR701	4 2221 29470	8PFRB-1K	1

Schematic Location	Parts No.	Description	Q'ty
CAPACITORS			
C201	C1CRE-106A--	ELECT 10M 16V	1
C202	C1ARE-477A--	ELECT 470M 10V	1
C203	C1HYDK221W--	CERAMIC 220P W 50V	1
C204	C1ARE-226A--	ELECT 22M 10V	1
C205	C1HYDK102W--	CERAMIC 1000P W 50V	1
C208	C2ARE-106A--	ELECT 10M 100V	1
C209	C2ARE-226A--	ELECT 22M 100V	1
C211	C1HCDK151SL-	CERAMIC 150P SL 50V	1
C212	C1HYDP472Z--	CERAMIC 4700P Z 50V	1
C251	C1HCDJ101SL-	CERAMIC 100P SL 50V	1
C252	C1HYDK681W--	CERAMIC 680P W 50V	1
C253	C1HFRK333A--	MYLAR 0.033M 50V	1
C254	C1CRE-106A--	ELECT 10M 16V	1
C401	C1HRE-105A--	ELECT 1M 50V	1
C402	C1HFRK223A--	MYLAR 0.022M 50V	1
C403	C1CRE-227A--	ELECT 220M 16V	1
C501	C1HFRK682A--	MYLAR 0.0068M 50V	1
C502	C1HFRK682A--	MYLAR 0.0068M 50V	1
C503	C1ERE-475A--	ELECT 4.7M 25V	1
C504	C1ETDM105A--	TANTAL 1M 25V	1
or	C1ETEM105A--	TANTAL 1M 25V	1
C505	C1CRE-227A--	ELECT 220M 16V	1
C506	C1HRE-225A--	ELECT 2.2M 50V	1
C507	C1CRE-106A--	ELECT 10M 16V	1
C508	C1ERE-475A--	ELECT 4.7M 25V	1
C509	C1CRE-106A--	ELECT 10M 16V	1
C511	C1CTDM475A--	TANTAL 4.7M 16V	1
or	C1CTEM475A--	TANTAL 4.7M 16V	1
C512	C1ARE-228A--	ELECT 2200M 10V	1
C513	C1CRE-106A--	ELECT 10M 16V	1
C514	C1HRE-225A--	ELECT 2.2M 50V	1
C515	C2GQRK333A--	POLYPR 0.033M 400V	1
C516	C2HCDK820SL-	CERAMIC 82P SL 500V	1
C517	C1HFRK473A--	MYLAR 0.047M 50V	1
C521	C1HFRM104A--	MYLAR 0.1M 50V	1
C601	C1HRE-474A--	ELECT 0.47M 50V	1
C602	C1HYDK331W--	CERAMIC 330P W 50V	1
C603	C1HFRK472A--	MYLAR 0.0047M 50V	1
C604	C1HFRK472A--	MYLAR 0.0047M 50V	1
C605	C1CRE-227A--	ELECT 220M 16V	1
C606	C1ERE-475A--	ELECT 4.7M 25V	1
C607	C1HFRK223A--	MYLAR 0.022M 50V	1
C608	C2AQRJ153A--	POLYPR 0.015M 100V	1
C609	C1HFRK473A--	MYLAR 0.047M 50V	1
C610	C1HFRM104A--	MYLAR 0.1M 50V	1
C611	C1HFRK154A--	MYLAR 0.15M 50V	1
⚠ C614	C2GQRK223A--	POLYPR 0.022M 400V	1
⚠ C615	C2GQRK223A--	POLYPR 0.022M 400V	1
C616	C1ARE-108A--	ELECT 1000M 10V	1
C618	C1CRE-477A--	ELECT 470M 16V	1
C619	C1HFRM104A--	MYLAR 0.1M 50V	1
C620	C1HFRK473A--	MYLAR 0.047M 50V	1
C621	C1EAEM006T--	ELECT 8.2M 25V	1
C622	C2CRE-105A--	ELECT 1M 160V	1
C624	C3AYDP103E--	CERAMIC 10000P E 1KV	1
C625	C2GQRM224A--	POLYPR 0.22M 400V	1
C626	C2HYDM101W--	CERAMIC 100P W 500V	1
C627	C1HYDK102W--	CERAMIC 1000P W 50V	1
⚠ C705	C1ERE-338A--	ELECT 3300M 25V	1
⚠ C706	C1ETDM475A--	TANTAL 4.7M 25V	1
⚠ or	C1ETEM475A--	TANTAL 4.7M 25V	1
C707	C1CRE-226A--	ELECT 22M 16V	1
FIXED RESISTORS			
R202	R2ESPJ473A	CARBON 47K 1/4WJ	1
R203	R2ESPJ101A	CARBON 100 1/4WJ	1
R204	R2ESPJ333A	CARBON 33K 1/4WJ	1
R205	R2ESPJ821A	CARBON 820 1/4WJ	1
R206	R2ESPJ271A	CARBON 270 1/4WJ	1
R207	R2ESPJ392A	CARBON 3.9K 1/4WJ	1
R208	R2ESPJ222A	CARBON 2.2K 1/4WJ	1
R209	R2ESPJ154A	CARBON 150K 1/4WJ	1
R210	R2ESPJ104A	CARBON 100K 1/4WJ	1
R211	R2ESPJ223A	CARBON 22K 1/4WJ	1
R212	R2ESPJ270A	CARBON 27 1/4WJ	1
R213	R3DXPJ222A	OXIDE-M 2.2K 2WJ	1
R216	R2ESPJ750A	CARBON 75 1/4WJ	1

NOTES:
1. Parts orders must contain Model Number, Parts Number and Description.
2. Ordering quantity of resistors, capacitors and screws must be multiple of 10 pcs.
3. Component parts indicated by parentheses in the column Q'ty are not available.

PARTS LIST

Schematic Location	Parts No.	Description	Q'ty
R251	R2ESPJ103A	CARBON 10K 1/4WJ	1
R252	R2ESPJ394A	CARBON 390K 1/4WJ	1
R253	R2ESPJ332A	CARBON 3.3K 1/4WJ	1
R254	R2ESPJ221A	CARBON 220 1/4WJ	1
R401	R2ESPJ221A	CARBON 220 1/4WJ	1
R402	R2ESPJ273A	CARBON 27K 1/4WJ	1
R403	R2ESPJ274A	CARBON 270K 1/4WJ	1
R404	R2ESPJ682A	CARBON 6.8K 1/4WJ	1
⚠ R405	R2HFPJ100A	F-OXIDE 10 1/2WJ	1
R501	R2ESPJ123A	CARBON 12K 1/4WJ	1
R502	R2ESPJ123A	CARBON 12K 1/4WJ	1
R503	R2ESPJ272A	CARBON 2.7K 1/4WJ	1
R504	R2ESPJ273A	CARBON 27K 1/4WJ	1
R505	R2ESPJ103A	CARBON 10K 1/4WJ	1
R506	R3APPJ0R6A	OXIDE-M 0.6 1WJ	1
R507	R2ESPJ102A	CARBON 1K 1/4WJ	1
R508	R2ESPJ103A	CARBON 10K 1/4WJ	1
R509	R2ESPJ472A	CARBON 4.7K 1/4WJ	1
R510	R2ESPJ183A	CARBON 18K 1/4WJ	1
R511	R2ESPJ274A	CARBON 270K 1/4WJ	1
R512	R2ESPJ103A	CARBON 10K 1/4WJ	1
R513	R2ESPJ681A	CARBON 680 1/4WJ	1
R514	R2ESPJ224A	CARBON 220K 1/4WJ	1
R515	R2ESPJ154A	CARBON 150K 1/4WJ	1
R516	R2ESPJ153A	CARBON 15K 1/4WJ	1
R517	R2HCPK101A	SOLID 100 1/2WK	1
R601	R2ESPJ123A	CARBON 12K 1/4WJ	1
R602	R2ESPJ822A	CARBON 8.2K 1/4WJ	1
R603	R2ESPJ331A	CARBON 330 1/4WJ	1
R604	R2ESPJ331A	CARBON 330 1/4WJ	1
R605	R2ESPJ223A	CARBON 22K 1/4WJ	1
R606	R2ESPJ562A	CARBON 5.6K 1/4WJ	1
R607	R2ESPJ562A	CARBON 5.6K 1/4WJ	1
R608	R2ESPJ272A	CARBON 2.7K 1/4WJ	1
R609	R2ESPJ332A	CARBON 3.3K 1/4WJ	1
R610	R2ESPJ152A	CARBON 1.5K 1/4WJ	1
⚠ R611	R2HFPJ330A	F-OXIDE 33 1/2WJ	1
R612	R2ESPJ123A	CARBON 12K 1/4WJ	1
R613	R2ESPJ271A	CARBON 270 1/4WJ	1
R614	R2ESPJ270A	CARBON 27 1/4WJ	1
R615	R2ESPJ181A	CARBON 180 1/4WJ	1
R616	R2ESPJ220A	CARBON 22 1/4WJ	1
R617	R2HCPK391A	SOLID 390 1/2WK	1
R618	R2HCPK220A	SOLID 22 1/2WK	1
R619	R2ESPJ152A	CARBON 1.5K 1/4WJ	1
R620	R2ESPJ272A	CARBON 2.7K 1/4WJ	1
⚠ R621	R2HCPK470A	SOLID 47 1/2WK	1
⚠ R622	R2HFPJ330A	F-OXIDE 33 1/2WJ	1
R624	R2HCPK682A	SOLID 6.8K 1/2WK	1
R625	R2ESPJ153A	CARBON 15K 1/4WJ	1
R626	R2ESPJ684A	CARBON 680K 1/4WJ	1
R627	R2ESPJ334A	CARBON 330K 1/4WJ	1
R628	R2ESPJ153A	CARBON 15K 1/4WJ	1
⚠ R702	R3RWVJ150A	WIRE-W 15 7WJ	1
R703	R2ESPJ101A	CARBON 100 1/4WJ	1
R704	R2ESPJ471A	CARBON 470 1/4WJ	1
R705	R2ESPJ330A	CARBON 33 1/4WJ	1
R706	R2ESPJ331A	CARBON 330 1/4WJ	1
R707	R2ESPJ122A	CARBON 1.2K 1/4WJ	1
R708	R2ESPJ272A	CARBON 2.7K 1/4WJ	1
R709	R2ESPJ122A	CARBON 1.2K 1/4WJ	1
R901	R2ESPJ152A	CARBON 1.5K 1/4WJ	1
R903	R2ESPJ152A	CARBON 1.5K 1/4WJ	1
R904	R2ESPJ333A	CARBON 33K 1/4WJ	1
R905	R2ESPJ223A	CARBON 22K 1/4WJ	1

TUBES AND SEMICONDUCTORS

D201	4 2021 10770	SI DIODE ERB24-02D	1
or	4 2021 15870	SI DIODE SM-1-02FR	1
D601	4 2020 03500	GE DIODE 1S188TV	1
D602	4 2020 03500	GE DIODE 1S188TV	1
⚠ D603	4 2021 10770	SI DIODE ERB24-02D	1
⚠ or	4 2021 15870	SI DIODE SM-1-02FR	1
D604	4 2021 09670	SI DIODE 1S1834	1
or	4 2021 21370	SI DI SM-1.5-02FRT	1
D605	4 2021 10770	SI DIODE ERB24-02D	1
or	4 2021 15870	SI DIODE SM-1-02FR	1
D606	4 2021 10470	SI DIODE ERB24-06D	1
D607	4 2021 10270	SI DIODE ERB24-04D	1
or	4 2021 15970	SI DIODE SM-1-04FR	1
D608	4 2021 10470	SI DIODE ERB24-06D	1
⚠ D609	4 2021 10670	SI DIODE SIB01-02	1
⚠ D701	4 2021 19970	SI DIODE S2VC10R	1
⚠ D702	4 2021 19870	SI DIODE S2VC10	1
⚠ D703	4 2021 14870	ZE DIODE WZ-063	1
⚠ or	4 2021 16270	ZE DIODE RD6.2E	1
D704	4 2021 17770	LED SLP-131B	1
IC501	4 2061 08670	IC-UPC1031H2	1
or	4 2061 09970	IC-LA1385	1
Q201	TG2SC536-----	SI TR 2SC536	1
or	TN2SC945-----	SI TR 2SC945	1
Q202	TG2SC536--E--	SI TR 2SC536	1
Q203	TG2SC2271----	SI TR 2SC2271	1
Q251	TG2SC536--F--	SI TR 2SC536	1
Q401	TG2SA608--E--	SI TR 2SA608	1
or	TG2SA608--F--	SI TR 2SA608	1
or	TN2SA733--Q--	SI TR 2SA733	1
or	TN2SA733--R--	SI TR 2SA733	1
Q501	TG2SC2271----	SI TR 2SC2271	1
Q601	TG2SC536-----	SI TR 2SC536	1
or	TN2SC945-----	SI TR 2SC945	1
Q602	TG2SD400-----	SI TR 2SD400	1
Q603	TG2SD823-----	SI TR 2SD823	1
or	TN2SC2373----	SI TR 2SC2373	1
Q604	TG2SC536-----	SI TR 2SC536	1
or	TN2SC945-----	SI TR 2SC945	1
Q701	TG2SD613-----	SI TR 2SD613	1
⚠ Q702	TG2SC536-----	SI TR 2SC536	1
⚠ or	TN2SC945-----	SI TR 2SC945	1
Q703	TG2SC536--F--	SI TR 2SC536	1
or	TN2SC945--P--	SI TR 2SC945	1
⚠ V901	QTM310GMB31NN	CRT 310GMB31-HT	1
⚠	QNE310KMB31NN	CRT 310KMB31-ARF	1

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3. Component parts indicated by parentheses in the column Q'ty are not available.